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DEPARTMENT OF ENVIRONMENTAL PROTECTION
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Drinking Water Program Policy #89-09
Watershed Resource Protection Plan Policy
Preparation Of A Watershed Resource Protection Plan
(Year 2000 Printing)

Effective Date: 2/4/90
Program Applicability
Supersedes Policy, SOP or Guidance #:
Approved by: David Y. Terry

Policy, SOP or Guideline # 89-09

This policy is adopted to provide guidance to Drinking Water Program staff concerning the minimum information to be contained in a Watershed Resource Protection Plan to be accepted for evaluation as conforming with one of the requirements of the EPA Safe Drinking Water Act of 1986 (SDWA) to avoid filtration.

Policy

Minimum Components for a Watershed Resource Protection Plan (WRPP)

It is DEP/DWS policy to accept for review a report describing a Watershed Resource Protection Plan which includes at a minimum, the information described below:

- A. Watershed Description
- B. Identification of Watershed Characteristics And Activities Detrimental Activities and Events
- C. Control of Detrimental Activities and Events
- D. Monitoring
- E. Agreements and Land Ownership
- F. Management and Operations

Guidance on the completion of these sections of the WRPP is discussed in further detail in the companion DWS guidance document, "Preparation of a Watershed Resource Protection Plan".

Report Submission: The WRPP will include (1) narrative which describes the Plan, and: (2) maps containing the best available information locating the characteristics and land users of the watershed. The narrative portion of the report will be typed and submitted to DEP/DWS as a bound report, using an ACCOPRESS type of binder or a three-ring binder with a cover label that includes the following information: line 1: Watershed Resource Protection Plan; line 2: name of the watershed; line 3: name of source; line 4: the name/address of the water supplier; line 5: date; line 6: PWS ID No.

The Water Supplier will send one copy of the completed WRPP to: DEP DWS/Regional Office, Attn: Watershed Resource Protection Program, and one copy to DEP/DWS Boston Office, Attn: Watershed Resource Protection Program, One Winter Street, 9th Floor, Boston, MA 02108. (Please note, any other type of submission should be approved by DEP/DWS prior to submission.)

Cover Pages (Form A): The cover page of the WRPP will identify the name of the river subbasin, the name of the name of the major river basin where this watershed is located, the name and address of the water supplier, date, public water supply identification number, municipalities served, whether the water supply is filtered or not, the municipalities within this watershed, the names of the other water supplies that withdraw water from the same watershed, date of submission, name/address/telephone no. of person(s) who prepared the report. The format and information requirements for these cover pages is provided on the attached Form A which will be incorporated as pages 1 and 2 of the WRPP.

Section/Page Numbering: For the purpose of consistency, the report should be organized to use the same sequence as presented in the outline below. Page numbering within the text should be prefixed to agree with the section of the report it represents. For example, the Watershed Description (Section A) will be numbered at the base of each page as Page A-1, Page A-2, etc.

Map and Overlay Preparation: The water supplier will submit two copies of each base map or overlay map of the Watershed Resource Area for each of those features detailed below on: (1) one or more U.S. Geological Survey 7.5 X 7.5 (Contour intervals in feet) or 15 X 7.5 (intervals in meters) Quadrangle Maps as the base map for the watershed area; scale: 1:25,000 and (2) dimension-stable mylar material (not rolled or folded). The transcription of map features onto mylar should contain north arrow, date and source of the mapped information, date of overlay preparation, title, explanation of symbols used (if any), and scale. Rapidograph-type pens with permanent black ink should be used when marking maps. Mark map border using pen size 1 (0.50 mm) or pen size 2 (0.60 millimeter). Watershed boundaries and internal lettering should be marked using pen size 00 (0.30 millimeter) or pen size 0 (pen size 0.35). Each overlay shall have each corner registered to an accurate latitude/longitude reference. Use U.S. Geological Survey standards for line feature, colors, terminology and symbols. Map accuracy: points on map should be within 100 feet of actual location. (Please note, the use of any other type of materials should be approved by DEP/DWS Watershed Resource Protection Program in Boston prior to submittal). A narrative description of the features shown on each map will be described along with an analysis (if appropriate) of any significant threats to water quality that must be considered in protecting the surface water supply from contamination. One mylar or base map overlay and its copy will satisfy the mapping requirement (upon completion these maps should be sent to the DWS/Watershed Resource Protection Program, Boston Office, and its copy to the DWS Regional Office).

- A. **Watershed Description** (Section A of WRPP).
This section of the WRPP should include maps and accompanying narrative descriptions and analyses to such maps with the following minimum information.
1. LOCATION OF MAJOR PHYSICAL FEATURES AND COMPONENTS OF THE WATER SYSTEM IN RELATIONSHIP TO THE WATERSHED

Base Map: Watershed and Watershed Protection Area Boundaries
 - a. Identify/Map the Boundary of the Watershed for the source in question on the appropriate USGS quad(s) base maps.
 - b. Map the Watershed Protection Areas (WPA) as defined below:
 - (1) **Zone A**: These areas fall within 400 feet of the 100-year flood plain elevation as delineated on the Federal Management Agency Maps (FEMA), of all 314 CMR 4.00 defined Class A surface waters. In addition an additional setback of a half mile or to the contributing surface watershed boundary will be applied for high-slope areas where the adjacent slope equals or exceeds 15 percent.
 - (2) **Zone B Area**: These areas are located one half mile ungradient of the Zone A boundary or the watershed boundary, whichever is less.
 - (3) **Zone C Area**: These areas encompass the remaining watershed not designated either Zone A or B
 - c. OVERLAY1: **Water Withdrawal and Aquifer Recharge**
 - (1) Map points of groundwater and surface water withdrawal to the public water supply.
 - (2) Identify/map major aquifers supporting yield equal to or greater than 100,000 gpd.
 2. HYDROLOGICAL CHARACTERISTICS OF THE WATERSHED
 - a. Describe historical precipitation patterns as they relate to stream response, erosion, discussing both frequency and magnitude.
 - b. Describe stream flow characteristics, including seasonal and high and low flow variations.
- B. IDENTIFICATION OF WATERSHED CHARACTERISTICS AND ACTIVITIES DETRIMENTAL TO WATER QUALITY (Section B of WRPP). This section of the WRPP focuses on mapping and information gathering of natural and man-made activities that have the potential to contaminate raw-water quality.
1. NATURALLY OCCURRING ATTRIBUTES OF WATERSHED
 - a. OVERLAY 2: **Erosion Potential** : Map Areas of Watershed having high erosion potential as determined for each region of the watershed based on slope, highly erodable land, and presence or absence of vegetative cover.
 - b. Describe existing concentrations of naturally occurring animal populations that have the potential to transmit pathogens and discuss the potential for contamination by Giardia, Cryptosporidium, fecal coliform, or viral contamination.
 2. MAN-MADE CONTAMINATION SOURCES: Man-made sources of potential contamination associated with land users within the Zones A, B and C of the watershed must be identified and mapped.

OVERLAY 3: Activities Subject To State or Federal Approval

- a. Locate and list all activities with EPA or DEP permits, licenses, assignments or approvals, by each of the following categories:

- (1) Water Pollution Control Permits
 - National Pollution Discharge Elimination System (discharges to surface waters)
 - Groundwater Discharge Permit
- (2) DEP or EPA Hazardous Waste Facilities
- (3) DEP Division of Solid Waste Facilities

The water supplier will list the permit file number, the permitting agency, and the name and address of the permittee, keyed to a sequential numbering system of the overlay.

- b. Locate/Map all sewered areas on Overlay 3.

c. OVERLAY 4: Gasoline Stations and Petroleum Storage

Identify /locate gasoline stations/petroleum storage facilities equal or greater than 2,000 gallons. Gather and record best information available on underground storage tank (UST) age (date installed), UST construction material (unprotected steel, fiberglass, concrete, cathodic protection, composite), UST tank volume, and UST material stored, keyed to a sequential numbering system on the overlay.

- d. OVERLAY 5: Zoning: Develop an overlay of current zoning within the watershed at the scale of 1:25,000

- e. OVERLAY 6: Generalized Land-Use: Map all sections of the watershed by one or more of the following categories:

- Residential
- Industrial
- Commercial
- Mixed Urban Areas (Residential/Industrial/Commercial)
- Croplands/Orchards/Golf Courses
- Animal Rearing Areas
- Other Agriculture
- Vacant, Undeveloped
- Transportation Facilities (but not Rights-of-Way)

- f. OVERLAY 7: Hazardous Waste Sites: Identify/locate all listed DEP 21E Hazardous Waste Sites listed as remedial or confirmed.

C. RISK ASSESSMENT AND CONTROL OF DETRIMENTAL ACTIVITIES/EVENTS (Section C of WRPP).

1. Summarize Results and Assess Risk: as identified for each category of Section B describing watershed characteristics and activities detrimental to water quality. At a minimum, the water supplier will describe the type and proximity of the contamination threat, from the following activities:

- a. Pesticide or Fertilizer Use
- b. Salt Storage
- c. Accidental Spills
- d. Domestic Animals & Wildlife

- e. Gas Stations/Auto Repair
- f. Unsewered Development
- g. Roadway Runoff & other Stormwater Sources
- h. Erosion
- i. Floods
- j. Parking Lots
- k. Forest Harvesting
- l. Construction Projects

2. **Control Mechanisms:** Describe the best management practices or regulatory control measures or other actions, which are in place or will be undertaken alone or in cooperation with others, to eliminate or restrict each of the threats discussed in section C.1. The description will identify the threat, the control mechanism(s), a schedule for implementing the controls and the responsible persons or agencies.

D. **MONITORING RAW-WATER QUALITY PARAMETERS (Section D of WRPP).**

SOURCE-WATER INFORMATION: The water supplier will provide DEP with source-water information from one or more locations within the watershed. The locations are chosen and the number of samples obtained for testing will be subject to approval by DEP. At a minimum, the collection and storage of water samples and the laboratory testing and analysis for water quality must conform to EPA sampling and water quality testing requirements. Methods are subject to approval by DEP.

OVERLAY 8: Water Quality Monitoring Sites: Identify/Map all monitoring stations for water quality analysis. List parameters for monitoring and describe frequency of sampling.

E. **AGREEMENTS AND DELINEATION OF LAND USE/OWNERSHIP (Section E of WRPP).**

1. **OVERLAY 9: Land Ownership:** List and Map, using two discrete patterns:

- (a) all open space owned or under the control of the water supplier, state, county or municipality including state and local parks, wetlands (including 100 foot buffer), conservation, etc.; also open-space land currently held in perpetuity by such organizations as the Audubon Society, the Nature Conservancy, etc; and
- (b) all lands that are owned, or restricted by written agreements or deed restrictions with landowners to control land use, for the purpose of protecting water supplies.

The water supplier will list the name and address of the land owner, type of control (agreement, deed restriction, ownership), the purpose for which the land or restriction is held; and dates of termination, when the terms of an agreement or restriction are not held in perpetuity. The list will be keyed to a sequential numbering system employed on the overlay.

2. Describe efforts to obtain ownership, such as any special programs or budget – current or those that will be undertaken.
3. Where ownership of land is not possible: (a) describe efforts to gain ownership of critical elements, such as reservoir or stream shoreline, highly eroded land, and access areas to water system facilities; and (b) describe success in obtaining written agreements between the water supplier and/or the municipality(ies) and/or other land owners; (c) describe your plan for agreements to control contamination from existing and/or future sources of potential contamination.

4. The water supplier will describe how it will ensure that the landowner complies with the agreements in E.3 above.
- F. MANAGEMENT/OPERATIONS: (Section F of WRPP). The watershed management plan shall include the following components.
1. Management
 - a. Provide organizational structure showing number of staff by position titles, whether authorized or filled, and job descriptions of staff employed for implementing the requirements of the WRPP.
 - b. Estimate staff requirements for implementing the control components of Section C; including patrolling, maintaining an emergency response team, and ensuring other compliance requirements of the WRPP.
 - c. Describe any minimum educational and certification requirements of each staff position, including annual training requirements.
 2. OPERATIONS: SYSTEMS OPERATIONS AND DESIGN FLEXIBILITY
 - a. Describe the process for conducting some form of on-going review, survey, or patrol in the watershed to identify and react to potential impacts from contamination of water quality. Identify different schedules of activity for performing this work within watershed protection Zones A and B. The scope of this review should be documented and agreed upon by the utility and the DEP/DWP Watershed Resource Protection Program, Regional Office on a case-by-case basis.
 - b. Describe an emergency response plan that identifies how eminent threats to public supplies will be rectified (staff on call, telephone number, equipment on hand, emergency response vendors on call, public education, etc.) from accidental releases of contamination for each land use activity having the potential to contaminate surface waters.
 - c. Describe operational changes which can be made to adjust for changes in water quality. Example: Switching to alternative sources; increasing the level of disinfection; using settling basins. Discuss what triggers, and who decides to make those changes.

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David Y. Terry, Acting Director
Division of Water Supply